

arsenide and antimonide. By the decomposition of these substances the hydrides H_2S , H_2Se , PH_3 and AsH_3 are obtained in a very pure state. SbH_3 can also be prepared in considerable quantity.—The estimation of thallium, by M. V. Thomas. The oxidation of thallous to thallic salts is carried out with bromoauric acid, the precipitated gold being weighed. Provided that the quantity of thallium present is not too small, the results are very exact.—Action of anhydrous aluminium chloride upon acetylene, by M. E. Baud. The aluminium chloride absorbs nearly four times its weight of acetylene, hydrogen, marsh-gas and ethylenic hydrocarbons being evolved. Complicated condensation products are formed, which are being further examined.—Some new organometallic combinations of magnesium and their application to syntheses of alcohols and hydrocarbons, by M. V. Grignard (see p. 85).—Santalenes and santalols, by M. M. Guerbet. A description of the isolation of two alcohols and two hydrocarbons from essence of sandalwood, together with the products resulting from the action of acetic acid, hydrochloric acid, and nitrosyl chloride upon the hydrocarbons and acetic anhydride, and phosphorus pentoxide upon the alcohols.—On tyrosinase, by M. C. Gessard. Tyrosinase is a ferment isolated from fungi, it possessing oxidising powers, giving a red oxidation product with tyrosin.—On the oxidation of erythrite by the sorbose bacterium and production of a new sugar, erythrulose, by M. Gabriel Bertrand (see p. 85).—On the amount of iron in hæmoglobin from the horse, by MM. L. Lapique and H. Gilardoni.—On a method allowing of the extraction of the sugar from molasses by means of the ordinary boiling apparatus, by M. Paul Lecomte.—Chlorophyll assimilation in plants confined in rooms, by M. Ed. Griffon.—A new self-registering apparatus for continuous currents, by MM. Auguste and Louis Lumière.

GOTTINGEN.

Royal Society of Sciences.—The *Nachrichten* (mathematico-physical section), Part iii., for 1899, contains the following memoirs communicated to the Society:—

October 28, 1899.—E. Riecke: Lichtenberg figures in the interior of Röntgen tubes.—W. Voigt: on a problem of Kohlrausch's in thermodynamics.—P. Gordan: new proof of Hilbert's theorem on homogeneous functions.

November 25.—W. Kaufmann: outlines of an electro-dynamical theory of gaseous discharges (Part i.).

December 14.—W. Kaufmann: the same (Part ii.).

December 9.—G. Bohlmann: a problem concerning the "smoothing-out" of statistical curves.

January 13, 1900.—S. Kantor: a theorem in determinants.—A. Schoenflies: a proposition in the analysis of position.—E. Neumann: on Robin's method for determining electrostatic potential.

February 8.—W. Voigt: remarks on the theory of so-called thermomagnetic effects.

February 3.—E. Zermelo: on the motion of a system of points in relation to inequations of condition.

February 17.—A. von Koenen: on the age of North German Wealden formation (*Wälderthon*).

AMSTERDAM.

Royal Academy of Sciences, April 21.—Prof. H. G. Van de Sande Bakhuyzen in the chair.—The following papers were read:—Prof. Kluyver on approximation formulæ concerning the prime numbers, not exceeding a given limit. The author shows that it is possible to express the approximate value of the sum of the $(-s)$ th powers of these prime numbers, if only their total number be given. A similar formula gives an approximation to the value of the logarithm of the least common multiple of all integers below a given number.—Prof. Winkler, on behalf of Mr. M. A. van Melle, on some reflexes in respiration in connection with Laborde's method of re-establishing respiration stopped by narcosis by rhythmically pulling the tongue.—Prof. Franchimont, on behalf of Dr. Greshoff, on Echinopsine, a new crystalline vegetable base. This communication was accompanied by remarks by Prof. Kobert, of Rostock, and Prof. Verschaffelt, of Amsterdam.—Prof. van Bemmelen, on behalf of Dr. F. A. H. Schreinemakers, on the composition of the vapour phase in the system of water and phenol with one and with two liquid phases.—Prof. Bakhuis Roozeboom, (a) on behalf of Dr. A. Smits, on decreases in vapour tension and rises of the boiling point in the case of diluted solutions; (b) on behalf of

Dr. Ernst Cohen, on thermodynamics of Clark's normal element.—All the above papers will be inserted in the *Proceedings*.—The following papers were presented for publication in the *Proceedings*:—(a) One by Prof. Schoute, entitled "Joachimsthal Theorem for Normal Curves"; (b) one by Prof. Bakhuis Roozeboom, on behalf of Dr. Ernst Cohen, entitled "Studies on Inversion (I.)."

DIARY OF SOCIETIES.

THURSDAY, MAY 24.

LINNEAN SOCIETY at 3.—Anniversary Meeting.
INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Annual General Meeting.

FRIDAY, MAY 25.

ROYAL INSTITUTION, at 9.—The Great Alpine Tunnels: Francis Fox.
PHYSICAL SOCIETY, at 5.—Experiments illustrating the Aberration called Coma: Prof. S. P. Thompson, F.R.S.—Notes on the Measurement of some Standard Resistances: R. T. Glazebrook, F.R.S.—On the Strength of Ductile Materials under Combined Stresses: J. J. Guest.

MONDAY, MAY 28.

SOCIETY OF ARTS, at 4.30.—Imperial Telegraphic Communication: Sir Edward Sassoon.

TUESDAY, MAY 29.

ANTHROPOLOGICAL INSTITUTE, at 8.30.—Early Communications between Italy and Scandinavia: Dr. Oscar Montelius.

WEDNESDAY, MAY 30.

SOCIETY OF ARTS, at 8.—Russian Central Asia; Countries and Peoples: A. R. Colquhoun.

THURSDAY, MAY 31.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: Palæolithic Man in Africa: Sir John Evans, F.R.S.—On the Estimation of the Luminosity of Coloured Surfaces used for Colour Discs: Sir W. de W. Abney, F.R.S.—The Sensitiveness of Silver and of some other Metals to Light: Major-General Waterhouse.—The Crystalline Structure of Metals (Second Paper): Prof. Ewing, F.R.S., and W. Rosenhain.—The Exact Histological Localisation of the Visual Area of the Human Cerebral Cortex: Dr. J. S. Bolton.—Vapour-density of Bromine at High Temperatures (Supplementary Note): Dr. E. P. Perman and G. A. S. Atkinson.

FRIDAY, JUNE 1.

ROYAL INSTITUTION, at 9.—Bunsen: Sir Henry Roscoe, F.R.S.
GEOLOGISTS' ASSOCIATION, at 8.—Our Older Sea Margins: Sir Archibald Geikie, F.R.S.

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